2.0 An Overview of Key Issues Raised in Comments on the Revised Draft HSW EIS

This section summarizes key issues raised during the public comment process for the DOE revised draft HSW EIS (DOE 2003). It also provides the DOE responses to those key issues, including changes incorporated into the final HSW EIS. DOE identified the issues as "key" based on factors such as the:

- number of comments received on a particular issue
- extent to which an issue concerned fundamental aspects of the proposed action
- nature of the comments characterized by the commenters
- extent to which DOE changed the final HSW EIS in response to the issue.

Key issues are grouped under the following six general categories:

- Effects of importing offsite waste
- Impacts on groundwater
- Scope of the HSW EIS
- Health, safety, and regulatory concerns
- Public involvement and trust
- Progress on Hanford cleanup.

Subsequent sections of this CRD presents comments received on the revised draft HSW EIS and provide the DOE's responses to these comments.

1. Effects of importing offsite waste.

Why would Hanford receive offsite waste without first cleaning up the wastes already at Hanford?

DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford has the capabilities to safely treat, store, or dispose of the wastes, whereas many other sites lack such capabilities. Hanford is part of the waste management system across the DOE complex and is meeting cleanup commitments and seeking to accelerate its cleanup schedule. In order to accelerate the cleanup of the Hanford site and other sites across the complex, it may be necessary

to undertake actions that may marginally increase the amount of waste at Hanford. In turn, substantial quantities of Hanford waste will be disposed of at other facilities. Some of the other sites may not have the treatment capabilities or capacities that exist at Hanford. Offsite wastes imported to Hanford may enable other sites that lack the capacity to treat these wastes to clean up sooner, thus saving money and releasing these sites for other uses. Leaving waste at these generator sites would increase DOE's overall waste management costs, and result in greater complex-wide impacts to workers and the environment. Finally, the ability to close other facilities reduces complex-wide needs for surveillance and security for radioactive and hazardous wastes.

Will the importation of wastes to Hanford increase existing levels of contamination of the site's soil and groundwater?

There are concerns about importing offsite wastes and the effect that waste might have on Hanford's environment. To address the issue, different waste volumes were analyzed under each of the alternatives – Hanford Only, Lower Bound, and Upper Bound. The Hanford Only waste volume was analyzed in the revised draft and in this final EIS because of comments received on the first draft HSW EIS that the impacts of offsite waste should be clearly identifiable relative to those from Hanford waste.

Waste imported from other DOE facilities would have minimal adverse impacts on the environment when compared to the waste received from generators at Hanford. Moreover, on balance, the quantities of radionuclides in waste imported from offsite generators would be much smaller than in waste Hanford would ship to offsite disposal facilities.

Why weren't the offsite transportation risks of shipping waste to Hanford evaluated?

About 300,000,000 hazardous material shipments take place every year in the U.S. Of these shipments, about 3,000,000 involve radioactive materials, including about 10,000 DOE shipments. The environmental and health and safety impacts of offsite waste transportation were previously discussed in the Waste Management Programmatic Environmental Impact Statement (WM PEIS). The WM PEIS considered shipment by rail, as well as by truck, and addressed all waste types, including both contact-handled and remote-handled TRU waste shipped to or from Hanford. This final HSW EIS includes an updated version of the WM PEIS transportation analysis for wastes that may be shipped to, or from, Hanford. See Volume I, Section 5.8 and Volume II, Appendix H.

Offsite LLW, MLLW, and TRU waste can be safely shipped to and from Hanford without exposing the public and environment to undue risks. This is ensured by a number of means that emphasize preventing releases of radioactive and hazardous material in transit – including appropriate packaging, route selection, communications, vehicle safety, and driver training. Onsite hazardous material transfers must comply with the U.S. Department of Transportation (DOT) hazardous materials regulations. For offsite hazardous materials packaging and transportation safety, each package and shipment of hazardous materials must be prepared in compliance with the DOT hazardous materials regulations and applicable tribal, state, and local regulations not otherwise preempted by DOT. In the unlikely event that an accidental release occurs, DOE provides the necessary support to local first responders to effectively

mitigate, clean up, and monitor potential releases, as well as provide medical treatment to people exposed to radiation.

At a public meeting on the revised draft HSW EIS held in La Grande, Oregon, on May 12, 2003, state officials from the Oregon Department of Transportation (ODOT) offered information on the safety of shipping wastes through Oregon. They stated that since 1982 over 15,000 radioactive waste shipments have gone through Oregon, with only seven incidents occurring, one of which would be considered serious (i.e., a roll over). However, none resulted in a release of radioactive material.

Why wasn't the most recent census data employed in doing the offsite transportation analysis?

The 2000 Census has been employed in the final HSW EIS to analyze the transportation of waste to and from Hanford. The conclusions of this analysis are consistent with the conclusions reached in the WM PEIS transportation analysis.

Many of Oregon's highway bridges are in a perilous state of disrepair. The HSW EIS does not evaluate the transportation risks of detouring waste shipments through cities and towns along the interstate while these bridges are being repaired.

ODOT has identified 487 bridges with some degree of cracking; 309 of those are likely candidates for repair or replacement. Two hundred twenty-one of the critical bridges lie on Interstate 5 and Interstate 84. Oregon has developed a strategy to fix Highways 20 (Bend to Ontario) and 97 (California border to the Washington State line) as alternative east-west and north-south routes that can be improved quickly at least cost (scheduled for completion in 2005), and could serve as detour routes if necessary for subsequent stages of the work to restore the interstate system. The subsequent stages of the project will address the bridges on I-84 and begin work on Interstate 5, proceeding from the north to the south. As work progresses southward on Interstate 5, lateral routes will be fixed that will reconnect the coastal parts and Central Oregon to Interstate 5 as repairs continue southward. The repairs on the interstates are expected to be completed by 2015 (Oregon 2003).

During the period of repair, truckloads of radioactive/hazardous materials will stay on the interstates wherever possible and would typically not be detoured through cities and towns along the route. If construction/repair of a bridge is taking place, traffic would be detoured to the opposite side of the freeway from where construction/repair is taking place – the open half of the freeway would temporarily become a two-way road. If the entire bridge were to be closed, the most common procedure would be to have traffic exit the freeway at the interchange immediately before the bridge and enter the freeway on the other side of the bridge at the same interchange or at the next entrance (information presented by Mike Barry, Oregon Department of Transportation, during the public hearing in La Grande, Oregon, on May 12, 2003, see a transcript of the presentation in Volume IV of this HSW EIS). In such cases, having a small number of shipments travel a short distance on routes other than the interstate freeways would not substantially change the transportation risks or conclusions presented in the HSW EIS.

DOE has not considered the advent of a terrorist attack or other malevolent event affecting the transportation of radioactive/hazardous waste being shipped to Hanford.

The consequences of a "malevolent event" are expected to be within the range of accidents including severe (low probability, high consequences) accidents already evaluated in this HSW EIS. The HSW EIS analyzes several accident scenarios, including fires, explosions, and earthquakes (see Volumes I and II, Section 5.11 and Appendix F, respectively). This EIS also analyzes the impacts of accidents during transportation of waste (see Volumes I and II, Section 5.8 and Appendix H, respectively). It is not possible to predict the probability of a malevolent event; however, in general the LLW, MLLW, and TRU wastes do not present an attractive target. The shipping containers and other measures used for transporting these materials are designed to be commensurate with the potential hazard. In response to comments, DOE included a discussion of the potential impacts of acts of sabotage or terrorist attacks in Volume II Appendix H of this EIS.

2. Impacts on Groundwater.

The HSW EIS should evaluate the contributions to cumulative impacts on groundwater of Iodine-129 (I-129).

The final inventories of I-129 in various waste streams are still under development for a future site-wide composite analysis of waste remaining at the Hanford Site over the long term. However, the HSW EIS cumulative impacts analysis for groundwater has been revised to include a conservative estimate for the inventories and groundwater concentrations of I-129. The cumulative impacts analysis includes estimates for groundwater concentrations of radionuclides that are expected to be the major contributors to potential health impacts over the long term. See the discussions in Volume I, Section 5.14 and Volume II, Appendix L of the final HSW EIS.

The HSW EIS should evaluate groundwater impacts adjacent to the disposal facility boundary; e.g., within 100 m.

The final HSW EIS provides a quantitative analysis on the relative impact at the facility boundaries (about 100 meters down gradient versus impacts at 1 kilometer [km] from the burial ground) for the preferred alternative, and a qualitative comparison is made for the other alternatives. The analysis is reported in Volume I Section 5.3 and Volume II Appendix G of the final HSW EIS. The Facility Performance Assessment (FPA) would include analysis at the point of compliance, based on applicable requirements for obtaining a Washington State permit and the DOE disposal authorization for facility construction. This process will occur after the final HSW EIS and Records of Decision (RODs) are issued, and a more definitive design for the disposal facility has been developed. The disposal facility will comply with all applicable standards and regulations.

Why would DOE want to add to groundwater and vadose zone contamination?

DOE believes that the risks associated with properly disposing of waste in regulatory compliant disposal facilities are lower than leaving radioactive and mixed wastes in other more environmentally

accessible locations. The potential impacts of activities proposed in the HSW EIS occurs several hundreds to thousands of years in the future. They are not expected to contribute to existing levels of groundwater contamination, which are anticipated to decrease over the next few hundred years.

DOE has been monitoring groundwater on the Hanford Site since the 1950s, and a centralized Hanford Groundwater Monitoring Project since 1996 helps assure protection of the public and the environment while improving the efficacy of monitoring activities.

How did DOE determine the scope of the Groundwater Impact Analysis?

This HSW EIS evaluates the groundwater impacts of managing solid LLW, MLLW, TRU waste, and ILAW at Hanford, as discussed in Volume I, Section 2.1. To perform the evaluation, DOE employed methods for estimating (based on available information) the total quantity of radionuclides from all sources at Hanford that could affect groundwater. Prior to disposal, as proposed in this HSW EIS, MLLW would be treated in accordance with applicable standards to meet land disposal restriction (LDR) requirements and waste acceptance criteria. Therefore, based on available information, the remaining chemical constituents of this waste are not expected to contribute substantially to cumulative groundwater impacts from previously disposed of waste. For groundwater impacts from the EIS alternatives and cumulative groundwater impacts from proposed actions analyzed in this HSW EIS, as well as other Hanford Site activities, see Volume I Sections 5.3 and 5.14 and Volume II Appendixes G and L of this EIS.

The HSW EIS should evaluate the contributions to groundwater contamination from tank waste residuals and older burial grounds containing hazardous constituents and TRU waste.

The HSW EIS cumulative impacts analyses account for contributions from tank waste residuals, contaminated soil sites, and inactive burial grounds to the extent information is available (see Volumes I and II, Section 5.14 and Appendix L, respectively). Impacts from various alternatives for retrieving tank waste are expected to be evaluated as part of the *Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Wastes and Closure of Single-Shell Tanks at the Hanford Site* (68 FR 1052). Inactive burial grounds are being, and will continue to be, evaluated under the Resource Conservation and Recovery Act (RCRA) past practice or Comprehensive Environmental Response, Compensation, Liability Act (CERCLA) process. The characterization necessary to determine appropriate remediation measures for many of these sites is ongoing. DOE is addressing concerns associated with 200 Area disposal sites, such as the discovery of carbon tetrachloride vapor in a 200 West Area low-level burial ground, as part of a program to characterize older disposal sites that may present a near-term risk. As the inactive disposal sites are characterized, appropriate measures to stabilize or remediate the sites will be determined. In the meantime, DOE needs to continue its ongoing waste management activities to support facility deactivation and other operations.

3. Scope of the HSW EIS.

How are tank wastes dealt with in the HSW EIS?

Management of the Hanford Single-Shell Tank System and Double-Shell Tank System is not within the scope of the HSW EIS. Management of Hanford tank waste has been the subject of two previous NEPA analyses (DOE 1987, DOE and Ecology 1996), and will be addressed further in the *Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site* (68 FR 1052). That EIS will evaluate alternatives for treatment and disposal of some tank wastes at Hanford. High-level waste (HLW) will be disposed of in a geologic repository. DOE is now preparing a license application to the Nuclear Regulatory Commission (NRC) to obtain a permit to construct a repository for Spent Nuclear Fuel (SNF) and HLW at Yucca Mountain in Nevada.

The HSW EIS addresses management of LLW, MLLW (including waste treatment plant melters), ILAW, and TRU waste. On July 8, 2002, DOE published a Notice of Intent in the Federal Register announcing its plan to prepare a supplemental EIS (SEIS) to the Tank Waste Remediation System (TWRS) EIS for the disposal of ILAW (67 FR 45104). During the scoping period, all interested parties were invited to submit comments concerning the scope of the issues, alternatives, and environmental impacts to be analyzed in the ILAW SEIS, and a public scoping meeting was held in Richland, Washington, on August 20, 2002. One of the comments provided during scoping was that disposal of ILAW at Hanford should be considered with disposal of other similar radioactive wastes, such as LLW and MLLW, and should be included in the HSW EIS. In response to this concern, DOE decided to include the ILAW disposal analysis in the HSW EIS. Consequently, topics that were originally identified in the Notice of Intent for consideration in the TWRS Supplemental EIS are now addressed in this final HSW EIS, and all comments on ILAW generated during the scoping phase of the TWRS Supplemental EIS are now included in Volume II, Appendix A of the HSW EIS. DOE published a Notice of Revised Scope for the HSW EIS in the Federal Register on February 12, 2003 (68 FR 7110).

Why would DOE consider unlined trenches for burying radioactive wastes?

The HSW EIS considers a wide range of alternatives for disposal of LLW in both lined and unlined facilities. The use of unlined trenches for disposal of LLW is an established, legal, and environmentally protective method of LLW disposal at both DOE and commercial facilities. As such, it is a reasonable alternative under the Council on Environmental Quality (CEQ) regulations, and must be analyzed. DOE uses, and would continue to use, regulatory compliant facilities incorporating liner and leachate collection systems for disposal of MLLW, and is considering using lined trenches for all future waste disposals, including LLW. The HSW EIS analysis, assuming continued use of existing disposal capacity in both lined and unlined trenches, is conservative and shows that environmental impacts would be small. Disposal of LLW would meet applicable regulatory requirements and Hanford Site Solid Waste Acceptance Criteria to ensure protection of public health and the environment.

Some waste inventories have been incompletely characterized and reported. Why is this the case?

The basis for waste inventories varies with the type of waste and its source, and may include information such as process knowledge or direct assay. In general, inventories for wastes received in recent years are associated with less uncertainty than those disposed of in the early 1970s. Wastes received in later years are more fully characterized because of improved analytical capabilities and added requirements for record keeping. The HSW EIS discusses areas of uncertainties and incomplete information, and where quantitative analyses are performed, makes conservative assumptions regarding waste inventories based on process knowledge, assays of previously received waste, or other available information.

Inventories of hazardous chemicals in waste were not generally maintained by industries in the United States prior to the implementation of RCRA. Consistent with these general practices, inventories of hazardous chemicals in radioactive waste were not required to be determined or documented before the application of RCRA to radioactive mixed waste at DOE facilities in late 1987. Wastes placed in the LLBGs before late 1987 have not been specifically characterized for hazardous chemical content, but they have been evaluated in the EIS alternatives relative to their radionuclide inventories. In addition, preliminary estimates of chemical inventories in this waste have been developed for analysis in the HSW EIS, and a summary of their potential impacts on groundwater has been added to Volume I, Section 5.3 and Volume II, Appendix G. A listing of the types of hazardous constituents in solid waste disposed of between 1968 and 1988 indicates the presence of RCRA- or state-designated hazardous inorganic chemicals, acids, oils, solvents, and metals such as beryllium and lead (DOE-RL 1985 and 1989). The bulk of these materials was in a solid non-dispersible form and is not highly mobile in groundwater. Practices used to stabilize and contain radionuclides in the waste would also aid in limiting migration of nonradioactive hazardous constituents.

Most hazardous materials historically used in large quantities at Hanford were organic liquids or solutions containing inorganic compounds and metals such as cadmium. At that time, bulk liquid wastes were disposed of directly to the ground via ponds, trenches, cribs, and ditches – a historical practice that was reduced over time and discontinued in 1995. Some of those contaminants have been detected in groundwater as a result of the past liquid waste disposal practices. A previous evaluation of waste disposal sites confirmed that groundwater contamination by hazardous chemicals was primarily a result of past liquid discharges rather than solid waste disposals (DOE 1996).

Wastes and residual soil contamination remaining at Hanford over the long term, and which are not specifically evaluated as part of the HSW EIS proposed action and alternatives, have been evaluated previously as part of NEPA or CERCLA reviews. The risks associated with older solid waste burials, tank waste residuals and leaks, and transuranic-contaminated soil sites, were assessed previously and found to be very small, even for alternatives where the waste is stabilized in place (DOE 1987, DOE and Ecology 1996). Sampling of soil and groundwater up- and down-gradient from active solid waste disposal facilities has not provided evidence that these facilities contributed to existing groundwater contamination (Hartman et al. 2002).

The HSW EIS has benefited from preceding analyses and field observations, including the performance assessments for 200 West and 200 East post-1988 burial grounds (Wood et al. 1995, 1996), the remedial investigation and feasibility study of the ERDF (DOE 1994), the disposal of ILAW originating from the single- and double-shell tanks (Mann et al. 1997) and (Mann et al. 2001), and the Composite Analysis of the 200 Area Plateau (Kincaid et al. 1998). These and related environmental analysis documents have provided inventory data and screening or significance criteria to identify those radionuclides that could be expected to substantially contribute to either the dose or risk calculated in the respective analysis. The radionuclides identified as potentially significant in these published analyses are also expected to be key radionuclides in this assessment.

DOE plans to further characterize many of these sites under the RCRA past practice or CERCLA processes to determine whether remedial action would be required before the facilities are closed. Therefore, either the long-term risks from these wastes would be determined to be minimal, or the waste would be remediated by removal or stabilization to reduce its potential hazard. An updated analysis of long-term impacts from these sites is also included in the cumulative impacts analysis in this EIS (See Volumes I and II, Section 5.14 and Appendix L, respectively).

DOE is continuing to refine computer models and their supporting data to provide estimates that are more precise. If further analysis shows the potential for adverse cumulative groundwater impacts, then DOE would implement additional mitigation measures to prevent such cumulative impacts from occurring. Potential mitigation measures could include treating waste by such methods as macro-encapsulation, grouting, or placing it in robust containers.

Why doesn't the HSW EIS evaluate all waste forms on the Hanford site instead of only solid waste?

The purpose of the HSW EIS is to meet DOE needs to provide capabilities to continue, or modify, the way it treats, stores, and disposes of existing and anticipated quantities of solid LLW, MLLW, TRU waste, and ILAW at Hanford. This is undertaken to protect human health and the environment; facilitate cleanup at Hanford and other DOE facilities; take actions consistent with decisions reached by DOE under the WM PEIS; comply with local, State, and Federal laws and regulations; and meet other obligations such as the Hanford Federal Facility Agreement and Consent Order (also known as the Tri-Party Agreement [TPA]).

Volume I Section 5.14 (Cumulative Impacts) in the HSW EIS includes a discussion on past, current and reasonably foreseeable future actions in the Hanford area. Current and future activities include preparation for treatment and disposal of tank waste, CERCLA remediation projects, decontamination and decommissioning of the Hanford production reactors and other facilities, operation of a commercial LLW disposal site by U.S. Ecology, Inc., and operation of the Columbia Generating Station by Energy Northwest. Potential cumulative impacts associated with implementing the various HSW EIS alternative groups are summarized for storage, treatment, and disposal of the range of waste volumes evaluated. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower and Upper Bound volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the other activities, are small.

Older burial ground and contaminated sites containing hazardous materials and TRU waste are not evaluated within the scope of this EIS. Why?

The scope of the HSW EIS is to evaluate the potential environmental impacts of ongoing activities of the Hanford Solid Waste Program, to evaluate implementation of alternatives consistent with the WM PEIS, and to evaluate reasonably foreseeable treatment, storage, and disposal facilities and activities. A discussion of the WM PEIS and its relationship to the HSW EIS can be found in Volume I Section 1.5 of the final HSW EIS. The scope of this HSW EIS has been revised to evaluate disposal of the immobilized low-activity waste generated by the Hanford Waste Treatment Plant. The cumulative impacts analysis (Volumes I and II, Section 5.14 and Appendix L, respectively) provides an evaluation of groundwater, health, and safety consequences from other past-buried wastes at Hanford, including pre-1970 burial sites, tank waste residuals, leaks, spills, commercial LLW, and environmental restoration waste.

The HSW EIS evaluates potential offsite TRU waste that could be shipped to Hanford as newly generated TRU waste. This TRU waste will not be disposed of at Hanford. It will be shipped to the Waste Isolation Pilot Plant (WIPP). TRU waste that is hazardous mixed waste will also be shipped to the WIPP. Decisions regarding "pre-1970 TRU waste" will be made through appropriate CERCLA or RCRA processes in collaboration with EPA and/or Ecology. The alternatives in this HSW EIS assume the post-1970 retrievably stored TRU waste will be shipped to WIPP in New Mexico based on previous NEPA decisions. The long-term environmental impacts of leaving the retrievably stored TRU wastes at Hanford were not evaluated in this HSW EIS because none of these wastes are expected to remain onsite. DOE plans to begin retrieving contact-handled retrievably stored waste from the LLBGs in FY 2004. Retrieval of this waste is scheduled to be complete in FY 2011. DOE plans to begin retrieving remote-handled, retrievably-stored waste from the LLBGs in FY 2011 and complete this retrieval in FY 2019 (United States of America and Ecology 2003).

The HSW EIS includes potential impacts of disposing of MLLW (mixed radioactive and hazardous waste), and radioactively contaminated lead shielding. With some exceptions, estimated inventories of hazardous chemical constituents associated with LLW and MLLW disposed after 1988 are being considered under each alternative and are expected to be found at trace levels. MLLW, which would be expected to contain the majority of hazardous chemical constituents, will undergo pre-disposal treatment to meet current Waste Acceptance Criteria and RCRA Land Disposal Restrictions before being disposed of in lined MLLW facilities.

4. Health, Safety and Regulatory Concerns.

Health and Safety

Why did DOE limit the scenarios in the human health impact analysis?

This HSW EIS evaluates a number of health impact scenarios using representative individuals and groups that could be exposed from continued and expanded solid waste operations at Hanford. These scenarios are consistent with health impact analyses in recent Hanford-related NEPA documents and with scenarios used to assess the impacts of Hanford operations in the Annual Hanford Environmental Report

(Poston et al. 2002). The scenarios are summarized in Volume I Section 5.11 and described in detail in Volume II Appendix F of the final HSW EIS.

The HSW EIS evaluates compliance with regulatory requirements, impacts on the environment, and the risk to human health for each alternative. DOE believes these scenarios adequately address potential human activities during normal operations, during postulated accidents, and during long periods after closure of waste management units, including intrusion into waste disposal areas long after closure, and impacts from use of groundwater or the Columbia River. The scenarios were selected to include activities that anyone living in the area would be engaged in, including activities postulated for persons having special sensitivity or unique living habits such as children or Native Americans. The scenarios also were selected to ensure that sufficient information would be available to support the specific actions for which the EIS was developed. These scenarios also include conservative unlikely cases such as use of groundwater as a source of drinking water near the waste disposal sites on the 200 Area plateau, even though institutional controls are expected to preclude such uses.

For wastes that are the subject of the proposed action and alternatives analyzed in this HSW EIS, DOE has evaluated the movement of contaminants through groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all constituent contaminants in groundwater from these wastes were well below benchmark drinking water standards at a hypothetical well located 1 km from the disposal facilities following implementation of any of the HSW EIS alternatives.

What are the long-term effects of groundwater contamination on the Hanford Site on the Columbia River?

Analysis of alternatives assesses the impacts on water quality in the Columbia River. For all alternatives analyzed in this HSW EIS, DOE has analyzed the movement of contaminants through groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at hypothetical wells located near the Columbia River. The health impacts on downstream populations of groundwater reaching the Columbia River are discussed in Volumes I and II, Section 5.11 and Appendix F, respectively, of this HSW EIS. The ecological impacts are discussed in Volumes I and II, Section 5.5 and Appendix I, respectively. The impacts of groundwater reaching the river are discussed in Volumes I and II, Section 5.3 and Appendix G, respectively.

Regulatory Concerns

DOE received a number of comments regarding the adequacy of the HSW EIS with respect to NEPA and the NEPA process. These comments can be grouped into two categories. The first deals with the relationship between the HSW EIS and the *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste* (WM PEIS, DOE 1997b). The second focuses more specifically on NEPA compliance and process,

including the adequacy of compliance with NEPA requirements. These categories are now briefly discussed.

What is the relationship between the WM PEIS and HSW EIS?

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS decisions regarding certain TRU waste, LLW, and MLLW streams. Site-specific waste management actions at Hanford involve transportation, treatment and processing of TRU waste and MLLW, disposal of LLW, MLLW and ILAW, and storage of LLW, MLLW, and TRU waste. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

The WM PEIS was a comprehensive evaluation of DOE nationwide waste management. The WM PEIS evaluated a broad suite of alternatives for waste management across the DOE complex, including managing most waste at generator facilities, or consolidating waste management at fewer sites that have existing facilities suitable to accept waste from other facilities. The impacts of those alternatives were compared for a variety of waste volumes at different DOE sites, including larger quantities of waste than are evaluated in the HSW EIS. The general result of the WM PEIS was that radioactive and hazardous wastes generated at a DOE site should be disposed of at that site unless the site was not capable of or not technically able to support those actions. DOE determined there was sufficient information in the WM PEIS to support decisions regarding the sites that were suitable for long-term waste management missions. Those decisions included processing and disposing of Hanford waste at Hanford, and the importation of wastes from other sites that could not adequately handle them. Decisions made as part of the WM PEIS made Hanford available for the disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

Are the HSW EIS and the process leading to a ROD complying with applicable NEPA regulations?

Yes. DOE has adhered to the CEQ regulations (40 CFR {Code of Federal Regulations} 1500-1508) and DOE NEPA requirements (10 CFR 1021) in preparing this HSW EIS.

Did DOE address the requirements of NEPA to consider cumulative impacts?

The final HSW EIS addresses environmental consequences including cumulative impacts on land use, air quality, ecological and cultural resources, socioeconomics, public health, and worker health and safety. Updated inventory information and calculations from the Hanford System Assessment Capability have also been incorporated into the cumulative impacts analysis for groundwater and the Columbia River (Volume I Section 5.14; Volume II Appendix L).

What is the relationship between the HSW EIS and the Tri-Party Agreement?

The Tri-Party Agreement (TPA) establishes milestones to bring DOE operating facilities into compliance with RCRA standards and to coordinate environmental restoration of Hanford under

CERCLA. This EIS analyzes certain activities that DOE proposes to take to meet related TPA milestones according to the agreed-upon schedule in the TPA.

Shouldn't the final HSW EIS provide more information about other Hanford environmental protection programs and requirements?

The final HSW EIS includes summaries of the major components of the proposed action regulatory framework in Volume I Section 6. Detailed evaluation of other environmental regulatory programs and their requirements is more appropriately addressed in the documentation prepared for those programs. Information about CERCLA, RCRA, dangerous waste management, groundwater monitoring, closure, post-closure care, and corrective action requirements is also addressed in detail in environmental documentation prepared pursuant to the environmental restoration programs, the TPA, and the Hanford dangerous waste management permit.

5. Public Involvement.

How did DOE advertise and notify the public of public meetings?

DOE maintains open channels of communication with members of potentially affected groups and other interested parties. The Hanford Advisory Board (HAB) is one such forum for these ongoing informational exchanges. The public involvement process for the revised draft HSW EIS consisted of several outreach efforts to assure a full exchange of information. Some of these outreach efforts included briefings to, and discussions with, the HAB and its committees and state regulatory agencies; distribution of postcards announcing the release of the revised draft HSW EIS to over 1,300 interested individuals and organizations; advanced mailing of over 3,300 fact sheets announcing the public meetings; press releases; the creation of a special HSW EIS website; and public meeting announcements in the major newspapers serving the Tri-Cities, La Grande, Hood River, Portland, Seattle, and Spokane. Information on the availability of the revised draft HSW EIS and the schedule for public meetings was sent to anyone who requested information, attended a public meeting, or submitted comments on the draft documents.

What was the public involvement process for the revised draft HSW EIS?

For the revised draft HSW EIS, DOE sought input from regulatory agencies, tribal nations, and members of the public. To ensure that interested parties were able to respond to the revised draft, DOE conducted public meetings in six different cities in Oregon and Washington, and provided a 47 day comment period. In response to requests for an extension, the comment period was extended by 15 days for a total comment period of 62 days (68 FR 28821, 68 FR 32486). Notification letters were sent to all individuals who requested information, attended meetings, and commented on the first draft HSW EIS. DOE considered comments received on the revised draft HSW EIS in preparing the final HSW EIS.

6. Progress on Hanford Cleanup

What progress has DOE made in the cleanup of Hanford?

Environmental cleanup is a top priority at Hanford and other DOE sites. Cleanup activities are being performed in accordance with the milestones and other provisions of the Hanford Federal Facility Agreement and Consent Order (Ecology et al. 1989, also referred to as the TPA). To date, DOE cleanup accomplishments have included the following:

- remediated over 210 contaminated soil and waste sites
- decommissioned over 500 inactive facilities
- placed three production reactors into interim safe storage and have accomplished significant portions of two more reactors
- disposed of over 4 million tons of environmental restoration waste in an approved facility, including over 800,000 tons since the beginning of FY 2002
- stabilized and moved more than 1,500 metric tons of the 2,100 metric tons of production reactor fuel from the K Basins to storage on the Central Plateau during the past three years
- shipped nearly 900 metric tons of uranium to an offsite storage facility
- initiated construction of the tank waste treatment plant for treatment of Hanford's tank waste
- continued treatment and disposal of MLLW in permitted facilities, including the treatment of over 550 cubic meters and the disposal of over 450 cubic meters since the beginning of FY 2002
- continued certification of TRU waste and off-site shipment to the Waste Isolation Pilot Plant, with over 34 shipments to WIPP (23 during FY 2003)
- continued retrieval of TRU waste, with over 1,400 drums processed to date
- continued stabilization and packaging of plutonium material, including completion of all plutonium-bearing solutions, plutonium metal, plutonium residues, and significant portions of plutonium polycubes and oxides
- continued treatment of contaminated groundwater—more than 6.7 billion liters of groundwater have been treated to remove substantial amounts of chromium, carbon tetrachloride, uranium, technetium-99, and strontium-90 contamination. In addition, installation of a chromium treatment barrier system in the 100 area has also been completed
- as of September 2002, removed over 84,700 kilograms (kg) (186,000 pounds) of carbon tetrachloride from the soil and groundwater by vapor extraction to remediate groundwater contamination, to prevent future groundwater contamination, and to reduce worker exposure (Hartman et al. 2003).